Name_____ Date_____ Period_____

Chapter 4 & 5
Cellular Structure, Plasma Membrane & Osmosis

Select the best answer and write the letter in the blank provided.

_____1. Which of the following would *not* be considered part of a cell's cytoplasm?

a. a ribosome
b. the nucleus
c. a mitochondria
d. DNA
e. fluid between the organelles

_____2. Which of the following consists of prokaryotic cells?

a. plants and animals
b. bacteria and archaea
c. plants, fungi, bacteria, archaea
d. animals
e. plants, bacteria, archae

_____3. Organelles involved in energy conversion are the

a. rough ER and Golgi apparatus
b. nucleus and smooth ER
c. nucleus and chloroplast
d. lysosome and ribosome
e. mitochondrion and chloroplast

_____4. You would expect a cell with an extensive Golgi apparatus to

a. make a lot of ATP
b. secrete a lot of material
c. move actively
d. perform photosynthesis
e. store large quantities of food

_____5. Which of the following correctly matches a structure with its function?

a. Mitochondrion—photosynthesis
b. nucleus—cellular respiration
c. ribosome—manufacture of lipids
d. lysosome—movement
e. central vacuole—storage

_____6. Which of the following stores calcium, important in muscle contraction?

a. mitochondria
b. smooth ER
c. the Golgi apparatus
d. contractile vacuoles
e. rough ER

_____7. Which group below is involved in manufacturing substances needed by the cell?

a. lysosome, vacuole, ribosome
b. ribosome, rough ER, smooth ER
c. vacuole, rough ER, smooth ER
d. smooth ER, ribosome, microtubule
e. rough ER, lysosome, peroxisome

_____8. The movement of molecules from an area of higher concentration to an area of lower concentration is called

a. diffusion
b. endocytosis
c. catalysis
d. active transport
e. osmosis

_____9. Phospholipid molecules in a membrane are arranged with their _____on the exterior and their _____on the interior.

a. Hydrophobic heads . . . hydrophilic tails
b. Hydrophilic heads . . . hydrophobic tails
c. nonpolar heads . . . polar tails
d. hydrophobic tails . . . hydrophilic heads
e. Hydrophilic tails . . . hydrophobic heads
e. hypotonic . . . lesser

Answer the following question in the space provided.

10. Compare the function of chloroplasts and mitochondria in a plant cell.

Osmosis is an important process that has many effects on living things. Test your understanding of osmosis by predicting in each of the following cases whether water will enter the cell (In) or leave the cell (Out), or whether there will be no net movement of water (None). Assume that the plasma membrane is permeable to water but not solutes.

_____11. Cell is exposed to a hypertonic solution.

_____12. Cell is placed in a salt solution whose concentration is greater than that of the cell contents

_____13. Due to disease, the solute concentration of the body fluid outside a cell is less that the solute concentration inside cells.

_____14. Cell is immersed in an isotonic solution.

_____15. A single-celled organism is placed in a drop of pure water for examination under a microscope.

_____16. Cell is immersed in solution of sucrose and glucose whose individual concentrations are less than concentration of solutes in cytoplasm, but whose combined concentration is greater than concentration of solutes in cytoplasm.

_____17. Solute concentration of a cell is greater than the solute concentration of the surrounding fluid.

_____18. Cell is exposed to a hypotonic solution.

_____19. Concentration of solutes in a cell's cytoplasm equals the solute concentration of extracellular fluid.

_____20. Cytoplasm is more dilute than surrounding solution.

Sketch and label the endomembrane system on this diagram. Include **rough ER, smooth ER, ribosomes, Golgi apparatus, lysosome, nuclear envelope,** and **transport vesicle.** (1) Trace the path of a protein from its site of manufacture to the outside of the cell with a red arrow. (2) Trace the path of a lipid secreted from the cell in blue.